in order to facilitate this discussion) establish direct (e.g., ad-hoc) connections with one another without the assistance of an intervening communication network. To take Bluetooth® technology as an example, such locally established networks are referred to as piconets.

Furthermore, two or more piconets can be interconnected, forming what is referred to in Bluetooth® and similar technology as a scatternet. The interconnection is brought about by one or more terminals each being members of the two or more piconets. Since a terminal can transmit and receive data in only one piconet at any given point in time, participation in multiple piconets has to be divided on a time division multiplex basis. However, participation in a piconet requires not only that the given terminal be active in that piconet, but also that another terminal forming the other end of the communication link with the given terminal in that piconet be active at the same time. The invention addresses the problem of scheduling time periods during which both nodes of a link have their transceiver tuned in to the same piconet, while minimizing losses due to timing mismatch. As explained in the specification on page 11, lines 3-5, a timing mismatch occurs when two units in separate piconets each have idle capacity available, but are unable to use the idle capacity to communicate with one another because there is no simultaneously available time window. Thus, it can be seen that the simultaneous presence of two units in the same piconet needs to be coordinated.

Accordingly, independent claim 1 defines, in an ad-hoc communication network in which terminals may belong to more than one piconet, a method of modifying the allocation of a terminal's capacity between two or more networks. The method comprises receiving, in a first terminal communicating in a first ad-hoc network, a request from a second terminal to modify the first terminal's capacity allocation to communicate in a second ad-hoc network with at least the second terminal; determining whether the first terminal has sufficient available capacity to accommodate the request; and if the available capacity is sufficient, then comparing the capacity allocation of the first terminal to the capacity allocation of the second terminal to determine mutually acceptable capacity blocks allocable to satisfy the request.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation

of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Office has failed to make out a *prima facie* case of obviousness for a number of reasons. To begin with, neither of the Cansever and Alvesalo et al. documents discloses a terminal operating in both first and second ad-hoc networks. Consequently, these references considered individually or in combination neither disclose nor suggest "receiving, in a first terminal communicating *in a first ad-hoc network*, a request from a second terminal to modify the first terminal's capacity allocation to communicate *in a second ad-hoc network* with at least the second terminal." (Emphasis added.) And without this aspect, no combination of Cansever and Alvesalo et al. can disclose or suggest the remaining steps of "determining whether the first terminal has sufficient available capacity to accommodate the request; and if the available capacity is sufficient, then comparing the capacity allocation of the first terminal to the capacity allocation of the second terminal to determine mutually acceptable capacity blocks allocable to satisfy the request". (Emphasis added.)

The Office now acknowledges that Cansever at least does not disclose the capacity request being from a second terminal in a second ad-hoc network, but relies on Alvesalo et al. as making up for this deficiency. This reliance is unfounded because the Alvesalo et al. patent has nothing to do with a terminal's participation in one or more ad-hoc networks. Rather, Alvesalo et al. relates to the coordination of spectrum capacity utilization between two or more cellular operators (e.g., GSM or CDMA cellular systems). (See, e.g., Alvesalo et al. at column 3, lines 51-61: "As the number of mobile subscribers increases and applications requiring wide bandwidth, such as multimedia applications, become more common, the prior art channel allocation methods are no longer capable of utilizing the available frequency spectrum efficiently enough. Special problems are presented by situations in which the limited frequency band is jointly used by several different systems, such as a mobile communications system and a cordless office system. It is an object of the present invention to alleviate these problems by rendering the allocation of transmission resources more effective.") In Alvesalo et al., spectrum resources such as frequencies (e.g., see Alvesalo et al. at column 5, lines 12-24) and time slots (e.g., see Alvesalo et al. at column

5, lines 42-52) are allocated among the various systems in a way intended to avoid interference and blocking between the different systems.

Nowhere, however, does the Alvesalo et al. patent mention even the possibility of a terminal participating in more than one of the networks/systems. The Office specifically cites Alvesalo et al.'s Abstract in support of the rejection. However, the Abstract merely summarizes the steps involved in allocating transmission resources between different networks.

It is apparent, then, that even if the Office's suggestion to combine the teachings of Cansever with those of Alvesalo et al. were to be carried out, the result would still fail to include "receiving, in a first terminal communicating in a first ad-hoc network, a request from a second terminal to modify the first terminal's capacity allocation to communicate in a second ad-hoc network with at least the second terminal; determining whether the first terminal has sufficient available capacity to accommodate the request; and if the available capacity is sufficient, then comparing the capacity allocation of the first terminal to the capacity allocation of the second terminal to determine mutually acceptable capacity blocks allocable to satisfy the request", as defined by independent claim 1.

Moreover, there is no motivation to combine the teachings of Cansever with those of Alvesalo et al. to arrive at Applicant's claimed invention because Cansever deals only with a single ad-hoc network, whereas Alvesalo et al. disclose techniques relating to the division of transmission resources between different networks. In this respect, the Office argues that "[t]he motivation of the achievement is to increase capacity allocation (modifying capacity) when a new ad-hoc network joins the existing ad-hoc network, or to decrease the capacity allocation when a joining ad-hoc network leaves an existing network." However, Cansever does not discuss the possibility of a "new ad-hoc network" joining the existing ad-hoc network, and so it is not at all clear why the skilled artisan having read Cansever would have been concerned with this problem.

Also, the above-identified deficiencies of Cansever and Alvesalo et al. cast great doubt about the existence of a reasonable expectation of success in making the combination, as now suggested by the Office.

For at least the above reasons, independent claim 1 is believed to be patentably distinguishable over any combination of Cansever with Alvesalo et al. Claims 4, 6-8, and 12 variously depend from claim 1, and are therefore patentable over Cansever and Alvesalo et al.

for at least the same reasons as those stated above. Accordingly, it is respectfully requested that the rejection of claims 1, 4, 6-8 and 12 under Section 103(a) be withdrawn.

Claims 9, 10, 13, and 14 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Cansever in view of Alvesalo et al. and further in view of Scheurich (U.S. Patent No. 5,848,266). This rejection is respectfully traversed.

Independent claim 9 defines, in an ad-hoc communication network comprising a plurality of Bluetooth units adapted to allocate capacity between at least two different piconets, a method of modifying a terminal's capacity allocation between a first piconet and a second piconet. The defined method comprises receiving, in a first terminal *communicating in the first piconet*, a request from a second terminal to modify the first terminal's capacity allocation *to communicate in a second piconet with at least the second terminal*, the request including a digital representation of the second terminal's capacity allocation; determining whether the first terminal has sufficient available capacity to accommodate the request; and if the first terminal's available capacity is sufficient, then comparing the capacity allocation of the first terminal to the capacity allocation of the second terminal to determine mutually acceptable capacity blocks allocable to satisfy the request.

Independent claim 10 defines a capacity allocation module for a first communication terminal, comprising a communication module for *communicating in a first ad-hoc network* and for receiving a request from a second communication terminal to modify the first terminal's capacity allocation *to communicate in a second ad-hoc network with at least the second terminal*, the request including a digital representation of the second terminal's capacity allocation; a memory module for storing a digital representation of the first terminal's capacity allocation; and a processor module operative associated with the memory module for comparing the first terminal's capacity allocation with the second terminal's capacity allocation to determine mutually acceptable capacity blocks allocable to satisfy the request.

It can be seen, then that each of independent claims 9 and 10 defines features relating to a terminal communicating in both a first ad-hoc network and a second ad-hoc network, and to allocating the terminal's capacity allocation in a way that makes this possible. Claims 9 and 10 are therefore patentably distinguishable over any combination of Cansever with Alvesalo et al. for at least the same reasons set forth above.

Scheurich fails to make up for the deficiencies of Cansever and Alvesalo et al., so that the same features would still be lacking even with Scheurich added to the mix. Scheurich deals with sending and receiving video information on a data bus in which the "digital representation" relied on by the Office in support of its rejection has nothing to do with mutual coordination of packet data communication between asynchronous ad-hoc networks, but instead relates to user data, video, and the like.

Therefore, it is respectfully asserted that independent claims 9 and 10, as well as claims 13 and 14 which depend from claims 9 and 10 respectively, are patentably distinguishable over any combination of Cansever, Alvesalo et al. and Scheurich. Accordingly, it is requested that the rejection of claims 9, 10, 13, and 14 under Section 103(a) be withdrawn.

Claims 2 and 3 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Cansever in view of Alvesalo et al. and further in view of Robinson et al. (U.S. Patent No. 6,122,291). This rejection is respectfully traversed.

Claims 2 and 3 each depend from independent claim 1, and are therefore patentably distinguishable over any combination of Cansever with Alvesalo et al. for the same reasons as set forth above with respect to claim 1. Furthermore, the Robinson et al. patent fails to make up for the deficiencies of Cansever and Alvesalo et al. because it does not address coordination of mutually acceptable capacity between nodes in two or more ad-hoc networks for the purpose of enabling a terminal to participate in each of the two or more ad-hoc networks. Instead, Robinson et al. disclose a system in which communicating (wideband receiver) nodes in a single network make dynamic use of a limited frequency spectrum by means of coordinating the modulation scheme and used spectrum bandwidth amongst the nodes.

For at least the foregoing reasons, claims 2 and 3 are believed to be patentably distinguishable over Cansever, Alvesalo et al. and Robinson et al., regardless of whether these documents are considered individually or in any combination. Accordingly, it is respectfully requested that the rejection of these claims under Section 103(a) be withdrawn.

The application is believed to be in condition for allowance. Prompt notice of same is respectfully requested.

Respectfully submitted,

Potomac Patent Group PLLC

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I hereby certify that this correspondence is being sent by facsimile transmission to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 to the following facsimile number:

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